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Indiana Native Plant Society

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In the works

Terrestrial Plant Rule

By Dawn Slack

In January, the Indiana Natural Resource Commission (NRC) adopted the recommendation of the public hearing officer to proceed with ratification of the proposed Terrestrial Plant Rule which will ban 44 exotic invasive plants.

There are a few more steps to climb. The rule is being reviewed by the attorney general and will then be reviewed and signed by the governor before it becomes official. The attorney general has 45 days from the date the NRC submits a rule, and the governor has 30 days to approve or disapprove it.

Rules become effective 30 days after filing with the publisher. If all goes well, we may have an effective rule by the end of April.

The rule states a person may not:

1. sell, offer or grow for sale, gift, barter, exchange or distribute a species on the rule list;
2. transport or transfer a species; or
3. introduce a species.

Note that #1 and #2 are effective one year after the day of the rule, but #3 is effective immediately.

The Invasive Plant Advisory Committee is reassessing all plants on the official state list that are not ranked highly invasive. We are also assessing additional plants that are showing invasive characteristics that are not on the official list.

If the rule is adopted, we hope the amendment process will begin soon to add Callery pear (*Pyrus calleryana*), Norway maple (*Acer platanoides*) and others.

Follow the rule process at <https://www.in.gov/nrc/2377.htm>.

Dawn Slack is director of stewardship for the Indiana Chapter of The Nature Conservancy, chair of the Invasive Plant Advisory Committee and a member of INPS South Central Chapter.

Newly-banned invasives

The following are prohibited invasive terrestrial plants and are declared pests or pathogens regulated under Indiana's new Terrestrial Plant Rule:

- (1) *Achyranthes japonica* (Japanese chaff flower)
- (2) *Ailanthus altissima* (tree of heaven)
- (3) *Alliaria petiolata* (garlic mustard)
- (4) *Alnus glutinosa* (black alder)

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- (5) *Artemisia vulgaris* (mugwort)
- (6) *Arthraxon hispidus* (small carpgrass)
- (7) *Berberis thunbergii* (Japanese barberry)
- (8) *Carduus acanthoides* (spiny plumeless thistle)
- (9) *Carduus nutans* (musk thistle)
- (10) *Celastrus orbiculatus* (Asian bittersweet)
- (11) *Centaurea stoebe* (spotted knapweed)
- (12) *Cirsium vulgare* (bull thistle)
- (13) *Conium maculatum* (poison hemlock)
- (14) *Convolvulus arvensis* (field bindweed)
- (15) *Coronilla varia* (crown vetch)
- (16) *Dioscorea polystachya* (oppositifolia) (Chinese yam)
- (17) *Dipsacus fullonum* (common teasel)
- (18) *Dipsacus laciniatus* (cut-leaved teasel)
- (19) *Elaeagnus umbellata* (autumn olive)
- (20) *Euonymus fortunei* (wintercreeper)
- (21) *Euphorbia esula* (leafy spurge)
- (22) *Frangula alnus* (glossy buckthorn)
- (23) *Hesperis matronalis* (dame's rocket)
- (24) *Humulus japonicus* (Japanese hops)
- (25) *Lepidium latifolium* (pepperweed)

Banned! – continued on page 3



Blossoms of Callery pear (top) and Norway maple – two invasive tree species that advocates hope to eventually add to the list of banned plants

Invasives in Indiana

Good intentions gone bad

By Terri Gorney

"Multiflora rose, other than being a beautiful, stock-tight fence, also offers much food and cover for wildlife. The fruits of this rose, small red berries, are eaten by game and birds when other food is scarce, especially during midwinter."

This quote is from a 1956 article in the *Vidette-Messenger* in Valparaiso praising the benefits of planting **multiflora rose** (*Rosa multiflora*).

The US Department of Agriculture, Purdue University and Indiana Department of Conservation (today's Department of Natural Resources) all encouraged Hoosiers to plant this native of eastern Asia as a "desirable hedge and game cover."

Multiflora rose is an Asiatic plant introduced into Indiana as a "living fence" and "ornamental." It was hyped as useful for soil conservation and erosion control. Unfortunately, birds helped it spread.

In 1952, the Indiana Division of Fish and Game, through the Pittman-Robertson Project, offered five million multiflora rose seedlings for planting free of charge. By the late 1950s, Ralph Wilcox, Indiana state forester, had fears about the plant.

Some of the first negative writings on multiflora rose appeared in newspapers around the state in 1959. There were complaints from citizens who planted the multiflora rose as it grew to eight feet tall and spread. A farmer from Crawfordsville planted it and it spread. He used a tractor and blade to remove it after spraying it had failed. The roots kept spreading. One nurseryman, using it in grafting roses, let it escape. It spread through his woods.

Japanese honeysuckle (*Lonicera japonica*) was introduced in the US in the mid-1800s. It was dense and fragrant and grew quickly. It could rapidly overgrow a young forest and crowd out native species.

In 1917, The *Argos Reflector* commented, "There are many other good honeysuckle grown for decorative purposes, but none is more rapid-growing or freer from insect pests and fungus diseases than the Japanese honeysuckle."

In 1931, an ad in the *Indianapolis Star* featured an ad for Japanese honeysuckle. It was sold for 79 cents a bush. That same year, an article in the *Richmond Palladium-Item* promoted the plant as a "splendid vine for growing on a coarse mesh

chicken wire. They grow rapidly and form a dense screen." This same article also mentioned kudzu (*Pueraria montana* var. *lobata*) as a "vigorous grower. A single vine will frequently cover an area of 300 square feet in one season."

Kudzu was introduced in the US in the late 1800s and sold for its beauty and erosion control. This perennial is native to parts of Asia. It is extremely invasive and wreaks havoc on ecosystems, especially in the southern US. At last count, it was in 39 counties in Indiana. (See "Kudzu in Indiana? You bet!" in the fall, 2014, issue of *INPAWS Journal*.)

Autumn olive (*Elaeagnus umbellata*) was introduced in the US in 1830 and promoted as a fast-growing shrub and planted all over the state for wildlife food (berries) and cover. Native to China, Japan and Korea, it can grow to 20 feet in height. It is as aggressive as it is beautiful. It quickly takes over an open area, eliminating native plants. Unfortunately, it can be seen in many of our natural areas throughout Indiana.

Callery pear trees (*Pyrus calleryana*), native to China and Vietnam, are still sold today in Indiana. The nursery industry successfully lobbied to get the tree removed from the Terrestrial Plant Rule list of banned species. There were several planted around the area where I live in northern Indiana. One cold winter ice storm destroyed most of these trees. However, starts of these trees are now growing unchecked in an open wood lot.

In 2019, we realize the damage that invasive species create in our ecosystems. These plants were introduced with good intentions but went astray. Have we learned our lesson yet?

References

- Vidette-Messenger*, Valparaiso, IN, Feb. 22, 1956, p. 6
Jackson County Banner, Brownstown, IN, Sep. 17, 1952, p. 7
The Franklin Evening Star, Franklin, IN, Sep. 24, 1959, p. 8
Palladium-Item, Richmond, IN, May 14, 1931, p. 12
The Argos Reflector, Argos, IN, Feb. 1, 1917, p. 6; May 17, 1917, p. 2
The Indianapolis Star, Indianapolis, Apr. 4, 1931, p. 9
The Nature Conservancy web page on invasives, accessed Nov. 15, 2018

Terri Gorney is a member of INPS Northeast Chapter and vice-president of Friends of the Limberlost.



Jarka D. - Wikimedia

Multiflora rose has become a thorny problem since authorities advised Hoosiers to plant it as a "desirable hedge and game cover" in the 1950s.

Field notes

Indiana Dunes National Park! The 103-year wait for national park designation for Indiana Dunes National Lakeshore is over! *South Bend Tribune* reported Feb. 16 that the long-sought status for the federal property became “effective immediately” as part of the recent government spending bill. While signs and brochures will be updated, no major changes are expected at the 15,000-acre property along Lake Michigan. State officials hope the change will boost tourism. National Park Service and members of Congress have urged the designation since 1916, but the effort was halted by World War I and stymied ever since. Adjacent Indiana Dunes State Park remains state-owned.

Support for endangered species. A study in the Nov./Dec., 2018, *Conservation Letters*, a *Journal of the Society for Conservation Biology*, found that 90% of Americans support the Endangered Species Act and that support has not waned in the last two decades. The research by Jeremy Bruskotter et al. also concluded that “protecting species – even controversial predators [such as gray wolves] – does not weaken support for protective legislation.”

Banned! – from page 1


- (26) *Lespedeza cuneata* (sericea lespedeza)
- (27) *Ligustrum obtusifolium* (blunt-leaved privet)
- (28) *Lonicera japonica* (Japanese honeysuckle)
- (29) *Lonicera maackii* (Amur honeysuckle)
- (30) *Lonicera morrowii* (Morrow's honeysuckle)
- (31) *Lonicera tatarica* (Tatarian honeysuckle)
- (32) *Lonicera x bella* (Bell's honeysuckle)
- (33) *Microstegium vimineum* (Japanese stiltgrass)
- (34) *Morus alba* (white mulberry)
- (35) *Phalaris arundinacea* (reed canarygrass)
- (36) *Phellodendron amurense* (Amur cork tree)
- (37) *Phragmites australis* subspecies *australis* (common reed)
- (38) *Polygonum perfoliatum* (mile-a-minute vine)
- (39) *Reynoutria japonica* (Japanese knotweed)
- (40) *Reynoutria sachalinensis* (giant knotweed)
- (41) *Reynoutria x bohemica* (Bohemian knotweed)
- (42) *Rhamnus cathartica* (common buckthorn)
- (43) *Vincetoxicum nigrum* (black swallow-wort)
- (44) *Vincetoxicum rossicum* (pale swallow-wort) 

More trouble for monarchs. A study at the University of Michigan Biological Station has revealed another problem for monarchs. The July 10, 2018, *Michigan News* published by UM carried a story titled “Rising carbon dioxide levels pose a previously unrecognized threat to monarch butterflies.” Elevated levels of CO₂ in the atmosphere are weakening the medicinal properties of their food sources, milkweeds (*Asclepias* spp.). Milkweed species contain cardenolide, the steroid that enables monarchs to tolerate parasites, for whom it is toxic. When researchers subjected milkweeds to different levels of CO₂, plants exposed to higher levels had less cardenolide. The caterpillars that ate these plants had less resistance to parasites and their life spans were cut short by seven days. That doesn't sound like much unless you're a butterfly; an adult monarch's average life span is two to six weeks.

Run for the salamanders! The Jan./Feb. issue of *Outdoor Indiana* reminds us that the 16th annual Hellbender Hustle 5K run and Woodrat Walk will take place **April 13** at O'Bannon Woods State Park in Harrison County. Details are at on.in.gov/obannonwoodssp. Biologists are trying to restore the population of the eastern hellbender salamander in southern Indiana's Blue River. (photo by Brian Gratwicke–Wikimedia)



Conservation underfunded. In a Jan. 6 op-ed in *The Indianapolis Star*, members of the Indiana Conservation Alliance stated that Indiana's natural areas are “woefully underfunded.” It cites an “estimated \$100 million backlog of maintenance projects” needed at state parks. The group urges legislators to dedicate tax revenue from sales of outdoor equipment to conservation programs.

Speaking of funding ... The Indiana page of the winter, 2018, issue of *The Nature Conservancy Magazine* introduces the state chapter's new director of government relations, John Ketzenberger. He says the chapter's goals for the General Assembly are “securing additional funding for the Benjamin Harrison Conservation Trust, which is the state's primary source for conservation funding” and focusing on “the Farm Bill, the Land and Water Conservation Fund and increased conservation funding for Indiana.” 

Carey's smartweed: *Persicaria careyi*

Native plant profile

By Nathanael Pilla

Smartweeds (*Persicaria* spp.) are a genus of plants within the buckwheat family (Polygonaceae). Some authors still use the name "*Polygonum*." You probably know this genus as the weedy species that sneak into your gardens and lawns. However, the genus contains numerous species that inhabit swamps, forests, prairies and shallow ponds. Some are opportunistic, some are vines with

sharp bristles, and some dance on the fringe of fairy land with their delicate salmon pink or white flowers.

Among the approximately 26 species of smartweeds, few are as dazzling as Carey's smartweed (*Persicaria careyi*). It is also commonly called Carey's heart's-ease. State threatened in Indiana, Carey's smartweed is restricted to seven counties in the northwest corner of

the state (Kartesz, 2015). It stands erect at 2 to 5 feet tall, with a gorgeous, usually drooping inflorescence of tiny rose-pink to pinkish-white flowers arranged in a spike. It was named after the legendary botanist John Carey, who is also the namesake for the woodland sedge, *Carex careyana* (Wilhelm and Rericha, 2017).

This species is distinguished from other smartweeds by its spreading glandular hairs beneath a loosely flowered inflorescence. Often botanical identification keys place it next to the non-native Prince's feathers (*P. orientalis*), which differs in having spreading hairs with no glands. However, sometimes Carey's smartweed only has glandular hairs near the top of the plant. Prince's feathers also has darker flowers, a more compact inflorescence, and a larger, more flamboyant ocrea (a modi-

fied stipule which grasps the stem). The ocrea of Carey's smartweed is multi-colored, with a fringe of bristles growing around the ocrea's pink top.

Carey's smartweed blooms from July to September. It is an annual that does well with a bit of disturbance. It prefers mesic to wet-mesic sand communities (Wilhelm and Rericha, 2017). Carey's smartweed is also a coastal plain disjunct indicator species (Keddy and Sharp, 1994).

A coastal plain disjunct is a species with the main portion of its geographical range along the Atlantic Ocean and/or Gulf of Mexico coastal plain of North America, but with populations separated by a long distance where it is not present. There are a few well-known areas around the Great Lakes where coastal plain disjunct species are known to occur. A coastal plain disjunct indicator species is one that, when found, provides evidence that other coastal plain disjunct species are likely nearby. This means that where you find Carey's smartweed, there is a good chance you will also find other coastal plain disjunct species growing nearby.

Carey's smartweed is threatened not only due to range restriction but because of habitat loss and being out-competed by other weedy invasives such as common reed (*Phragmites australis*) and reed canary grass (*Phalaris arundinacea*).

If you visit a wet sand prairie in northwestern Indiana, keep a lookout for this special plant.

References

- Kartesz, J.T. The Biota of North America Program (BONAP). 2015. North American Plant Atlas. (<http://bonap.net/napa>). Chapel Hill, N.C. [maps generated from Kartesz, J.T. 2015. Floristic Synthesis of North America, Version 1.0. Biota of North America Program (BONAP). (in press)]
- Keddy, C.J. and Sharp, M.J., 1994. A protocol to identify and prioritize significant coastal plain plant assemblages for protection. *Biological conservation*, 68(3)
- Wilhelm, G. and L. Rericha, 2017. Flora of the Chicago region: a floristic and ecological synthesis. Indiana Academy of Science, Indianapolis

Nathanael Pilla is a botanist at Orbis Environmental Consulting and field trip chair for INPS North Chapter.

Nathanael Pilla

Lee Casebere

Seeking our rarest orange native wildflower

By Nate Simons

When the first heat of summer arrives each year so does one of the less common colors in the prairie landscape: orange. In northeast Indiana, there are few prairie wildflower species of that color. I can only think of six: spotted touch-me-not or jewelweed (*Impatiens capensis*), butterfly milkweed (*Asclepias tuberosa*), Indian paintbrush (*Castilleja coccinea*), orange fringed orchid (*Platanthera ciliaris*), Michigan lily (*Lilium michiganense*) and prairie lily (*Lilium philadelphicum*).

In late June and July, my original favorite prairie flower, butterfly milkweed, blooms in the dry prairies. At the same time, another of our rare orange flowers, the prairie lily, blooms in a single wet prairie in LaGrange County. Lee Casebere, former assistant director of the DNR Division of Nature Preserves (DNP), alerted me to the prairie lily in 2016. He directed me right to the spot where he saw them years before while exploring fens in northeast Indiana. That year, 13 plants put on a vivid display of vertical orange trumpets bugling in the sunshine. In 2017, fewer than 10 flowers appeared, but in 2018, I got to enjoy the beauty of 15 individuals flowering in an area the size of two basketball courts touching end to end.

Curious as to how rare the prairie lily really is, I checked Charles Deam's *Flora of Indiana*. Traveling to every township in Indiana during the early 20th century, Deam meticulously documented locations of every native and non-native plant he found. Letter codes plotted in counties on a state map indicated the presence of a dried and pressed voucher specimen stashed away in an herbarium in Indiana somewhere. Then the range of the prairie lily was in LaGrange and Allen counties in northeast Indiana and Lake, Porter, LaPorte, St. Joseph, Newton, Jasper, Pulaski, Fulton and Cass counties in northwestern Indiana. Even earlier, in 1894, W. B. Van Gorder had reported in a paper entitled *Flora of Noble County* that the prairie lily was "very plentiful in York and Sparta Townships."

Another conversation with Lee confirmed what I suspected. The LaGrange County population is the only one still known in northeast Indiana.

I called Tom Post, DNP's northwest Indiana regional ecologist, to get a feeling for how many sites remain in his neck of the woods. Having just returned from a field trip to [a] preserve in Lake

County where he had spotted a population of the prairie lily, Tom could come up with just three or four sites off the top of his head.

Lee and Tom encouraged me to keep digging (for facts, not lilies), recommending that I contact Mike Homoya, DNP botanist. An email to Mike triggered responses from other staff that the species is indeed much rarer than commonly thought. The consensus emerged that to get a better picture of the current extent of the lily's northwest Indiana range and population health, other conservation organizations, preserve owners and land trusts – NICHES Land Trust, Shirley Heinze Land Trust and The Nature Conservancy – should be contacted.

Lilium philadelphicum does not currently make the list of rare, threatened, and endangered plants and animals in Indiana. Though it may be prestigious to steward properties that contain such species, it is unfortunate when new species make it onto that list. When land is not cared for properly, plants and animals wane and wink out. The humble steward learns as much as possible about an ecosystem in order to protect it, care for it and provide space for other creatures. Raising awareness of plants that may be on the brink of extirpation in those landscapes is a step in the right direction to help bring them back from the edge of the precipice.

Fewer than one percent of the earth's pre-European settlement prairie landscapes still exist. The lakes country of northeast Indiana was once home to thousands of acres of these now incredibly rare landscapes. The few remaining acres serve as repositories of endangered species and as models for what good restoration and good stewardship of the land can attain.

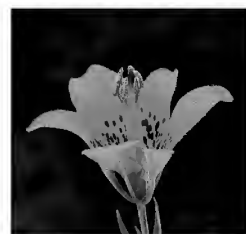
What a joy it will be some day to see the return of native grasslands to the lakes country of northeast Indiana, with windswept grasses and sedges swaying in the breeze and orange prairie forbs basking in the light of these sun-drenched, fire-dependent summertime landscapes! The orange prairie lily might be my new favorite prairie flower.

This article was previously published in *Rustling Grass*, the monthly newsletter of Blue Heron Ministries.

Nate Simons is executive director of Blue Heron Ministries, a land trust in Angola.



Nate Simons



Lee Casebere

A three-flowered prairie lily (top) and a single prairie lily, both photographed in LaGrange County

It's a grass! It's a sedge! No, it's ... ?

Botany basics



Wikimedia – James K. Lindsey



Wikimedia – Christian Fischer

Creeping spikerush (Eleocharis fallax) grows in wet areas and spreads rapidly by rhizomes which form a thick root mass that resists erosion and creates habitat for many beneficial bacteria.

By Mahalah Wilson

As any plant enthusiast will admit, there are times when identifying plants is frustrating. Pages upon pages of a plant identification book can be dedicated to one genus alone. A species may be nearly impossible to identify without a flowering or fruiting specimen. Grasses and sedges present just such a puzzle.

Flowering plants with greatly reduced flowers such as grasses can be especially tricky. When driving down any interstate, rural highway or county road you will see waving stands of grasses. Many species are commonly found in manicured home lawns and used as ornamentals in gardens throughout the US. There is another family of plants with morphologies similar to grasses. These are the sedges.

Grasses and sedges are *monocots*, meaning that when germination occurs the plants produce one (mono-) initial embryonic leaf (*cotyledon*). They may have stems that are upright or in the form of rhizomes underground. While still consid-

ered flowering plants, their petals and *sepals* (the outermost row of floral appendages) are absent or greatly modified. Other shared characteristics are long, narrow leaves with parallel veins and a fibrous root system. The matted roots of monocot plants are useful for soil stabilization because they

can physically hold soil in place. While many of the characteristics shared by grasses and sedges are traits of monocots, there are smaller details helpful in differentiating the two.

The grass family (Poaceae) is one of the largest plant families worldwide. Other large families are Asteraceae (aster or sunflower family), Fabaceae (legumes) and Orchidaceae (orchids). Grasses are among the most economically important plants for humans, both for direct consumption and as feed for livestock. Important among these are rice (*Oryza* spp.), wheat (*Triticum* spp.), maize (*Zea mays*), barley

(*Hordeum vulgare*) and oat (*Avena sativa*) (Roché, 2007). According to Mauseth (2017) 50% of our human diet consists of the fruits from grasses, not to mention their value as a food source for livestock. Their fruit (the grain) is a *caryopsis*.

A distinguishing vegetative characteristic of grasses is round, hollow stems with solid swollen nodes (Struwe, 2014). This is true most of the time, but corn (a grass) has solid stems, and there is one sedge with round hollow stems (*Dulichium arundinaceum*). The leaves consist of a sheath that wraps around the stem, and a blade. The sheaths are "open" or overlapping in most grasses, meaning they are split on the side opposite the blade. There are some grasses that have "closed" or fused sheaths, several of which are common in Indiana, including such genera as *Bromus*, *Dactylis* and *Glyceria*. Most grass flowers are perfect, because they include both male and female parts. A couple of exceptions are corn (*Zea*) and wild rice (*Zizania*). In grasses, the petals and sepals we associate with flowers are absent. Instead, each flower, called a *floret*, has two *bracts* that surround the stamens and pistil of each floret. The outer bract is called a *lemma*; the inner bract is called a *palea*. Florets usually occur in groups, called *spikelets*, which are supported by two bracts, the *glumes*.

Scores of grass species are found in Indiana, many that are native, but also numerous introduced species. Bottlebrush grass (*Elymus hystrix*), switchgrass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), dropseed (*Sporobolus* spp.), big bluestem (*Andropogon gerardii*) and sea oats (*Chasmanthium latifolium*) are among the more common native grasses.

Sedges are a smaller family, the Cyperaceae. A useful characteristic for identifying sedges is their triangular, solid stem; however, some sedges, including spikerush (*Eleocharis*), bulrush (*Schoenoplectus*) and three-way sedge (*Dulichium*), have round or sometimes compressed (two-sided) stems. Their stems lack swollen nodes and their leaves have a fused sheath. They also reproduce by seeds produced by florets in spikelets. Their flowers can be bisexual or unisexual. For sedges that produce unisexual flowers, the florets are often located on separate areas of the same spikelet (e.g., male flowers near the top,

Garlic mustard pesto

By Ellen Jacquart

Oh, the beautiful spring wildflowers you see as you hike through Indiana forests! There's celandine poppy with its bright yellow petals along the trail, spring beauty with delicate pink-striped flowers under that white oak, false rue anemone's patches of white flowers dancing in the breeze, and ... OH, NO! It's a wall of three-foot tall garlic mustard! This unwelcome invasive has a habit of displacing our native spring wildflowers. Does that make you as mad as it does me? Want revenge? Pull it and eat it!

Making pesto from garlic mustard is very easy. You won't need more than several plants for this recipe, so it's not going to get rid of more than a small patch, but every bit helps.

I've made this recipe before and I like it even better than traditional basil-based pesto. For the best tasting pesto, collect your garlic mustard leaves early in the season before the plants start flowering

female flowers near the base of the inflorescence) or on separate spikelets altogether. In the genus *Carex*, the ovary of the female floret is surrounded by a membrane-like sac called a *perigynium*.

Among the many sedges native to Indiana are yellow nut sedge (*Cyperus esculentus*), common spikerush (*Eleocharis palustris*), dark-green bulrush (*Scirpus atrovirens*) and bearded flatsedge (*Cyperus squarrosus*).

By using the combination of distinct differences between grasses and sedges such as stem shape and flower morphology, you can readily identify them to the family level. Identifying to the species level often requires examining plants under magnification, either with a hand lens or a dissecting microscope. Whether you enjoy seeing waving stands of grasses in a prairie or a flower bed, or like fishing on banks filled with sedges, you can appreciate the beauty and function of these plants.

References

- Mauseth, James D. Botany: An Introduction to Plant Biology. Jones & Bartlett Learning, p. 623-24, 2017
- Roché, Cindy Talbot, et al. "POACEAE or GRAMINEAE." *Manual of Grasses for North America*, edited by Mary E. Barkworth et al., University Press of Colorado, Logan, Utah, 2007, p. 3-4. JSTOR, www.jstor.org/stable/j.ctt4cgkq1.6. October, 2018
- Struwe, L. 2014. Field identification of the 50 most common plant families in temperate regions (including agricultural, horticultural, and wild species). Rutgers University, New Brunswick, NJ, USA. Published by the author, available at <http://www.rci.rutgers.edu/~struwe/>. October, 2018
- Also see: Rothrock, Paul. 2009. *Sedges of Indiana and the Adjacent States: The Non-Carex Species*

Mahalah Wilson is a junior at Franklin College. She is pursuing a degree in biology with a focus on conservation and ecology.

(early to mid-April in southern Indiana, late April to early May in northern Indiana). Like lettuce, the leaves become bitter once the flowers emerge. Wash the leaves well and pat them dry before using. Don't use plants found within several feet of roads to avoid heavy metals and other pollutants that might be in the soil.

Prep time: 15 minutes

Yield: 1 cup

Ingredients:

- 2 cups fresh garlic mustard leaves, washed and patted dry, packed
- 1/2 cup freshly grated Romano or Parmesan-Reggiano cheese (about 2 oz.)
- 1/2 cup extra virgin olive oil
- 1/3 cup pine nuts (to add more flavor, roast pine nuts until light brown, or substitute chopped walnuts if desired)
- 3 garlic cloves, minced (about 3 tsps.)
- 1/4 tsp. salt, more to taste
- 1/8 tsp. freshly ground black pepper, or to taste

1. Place garlic mustard leaves and pine nuts in bowl of a food processor; pulse several times.
2. Add garlic and Parmesan or Romano cheese; pulse several times more. Scrape down the sides of the processor with a rubber spatula.
3. While the food processor is running, slowly add olive oil in a steady small stream. Adding the oil slowly while the processor is running helps it emulsify and keeps the olive oil from separating. Occasionally stop to scrape down the sides of the processor.
4. Stir in salt and black pepper; add more to taste.

Toss with pasta for a quick sauce, dollop over baked potatoes, or spread onto crackers or toasted bread slices. Enjoy! 🌿



geograph.org.uk - Tony Atkin

Garlic mustard greens supply minerals and vitamins including A, C and E.

John Gottschalk: conservation leader

Naturalist profile



John Gottschalk's photo appeared in the Oct. 9, 1935, issue of the Palladium-Item, a Richmond newspaper.

By Terri Gorney

John Simison Gottschalk had deep roots in the Hoosier State, dating back to the 1830s when his pioneer ancestors settled in Adams County, close to the Wabash River. He would rise to the position of director of the US Fish and Wildlife Service, but would remember his Indiana beginnings in his last interview.

Gottschalk described how the author and naturalist Gene Stratton-Porter organized a group of women to go on horse and buggy field trips with her to Limberlost, "a large swamp on

the tributary of the Wabash River." His grandmother Grace Howard Simison was one of those women. His grandmother took pleasure in educating children in Berne about wildflowers. Gottschalk reminisced, "In the spring she would take us out and identify the wildflowers ... trout lilies, spring beauties and trilliums ..."

His grandfather Samuel Simison was an avid fisherman who took John with him on his outings, further encouraging Gottschalk's early love of the outdoors.

The summer after he graduated high school in 1930, Gottschalk became a lifeguard and ranger at Dunes State Park. He joked that his ranger job included cleaning bathrooms. So began his long successful career in conservation.

In 1934, after graduating from Earlham College with a degree in biology, he was hired as a nature guide at Turkey Run State Park. He enjoyed leading hikes and in the fall of that year, he gave a talk on the history of Turkey Run.

Gottschalk became an early advocate for the Indiana Department of Natural Resources (then State Department of Conservation) Educational Division. He traveled Indiana giving lectures on wildlife conservation. He was a featured speaker for organizations such as the Indiana Audubon Society and Purdue University.

By the age of 25, he was head of the Indiana Fish and Wildlife Department. He noted that he was one of only three persons employed by the

State with a degree in biology at that time. In 1943, he earned a master's degree in fisheries biology from Indiana University.

In 1964, Gottschalk left Indiana for a larger conservation stage when secretary of the interior Stuart Udall recommended him to president Lyndon Johnson to head the US Fish and Wildlife Service. As head of this organization, he helped start several wildlife programs, added more than 500,000 acres to the national wildlife refuge system and oversaw the banning of the insecticide DDT.

He served as president of the American Fisheries Society and was a board member of the National Wildlife Federation and the Audubon Naturalist Society.

Gottschalk died in 1999. He chose to be buried near the woods and the Wabash River where he roamed as a boy. 🍁

Donor Relations team receives a new focus

Last fall, Wendy Ford (web site/communications) and Cindy Monnier (membership) came up with the charge for a new team, Donor Relations, to be added to behind-the-scenes INPS operations.

Although raising funds has long been a part of what INPS does, they noted that the full potential of fundraising efforts had never been made explicit. As our programs grow and expand, they thought it important to build our fundraising capacity, and the INPS board agreed.

The Donor Relations team is charged with (1) building the donor base by establishing relationships with potential funders and collaborators and making sure members and others are aware of giving opportunities; (2) planning targeted fundraising campaigns to achieve mission objectives and exploring grant, sponsorship and planned giving options; and (3) making sure donors are thanked and acknowledged timely and appropriately.

We are grateful to Suzanne Stevens for stepping up to manage the task of thanking donors. The board is looking for leadership and consultation on this new INPS team. Your feedback is welcome at donors@indiananativeplants.org. 🍁

Biodiversity Heritage Library

How to find *INPS Journal* back issues

By Scott Namestnik

In March, 2016, the Indiana Native Plant Society (INPS; at that time, INPAWS) was contacted by a representative from the "Expanding Access to Biodiversity Literature" program at Harvard University, inquiring whether INPS would be interested in having our journal incorporated into the Biodiversity Heritage Library (BHL).

The inquiry stated: "BHL is a consortium of major natural history museum libraries, botanical libraries, and research institutions that cooperate to digitize and make accessible the legacy biodiversity literature. Together, the consortium accounts for over two million volumes of biodiversity literature collected over 200 years. Open access to the resources in the Biodiversity Heritage Library supports the work of scientists, researchers, and students in their home institutions and throughout the world."

Becoming part of such an esteemed consortium of organizations was a no-brainer! It took some time, but the early issues of *INPAWS News* and *INPAWS Journal* are now part of BHL, and the renamed *INPS Journal* will be included soon.

There are numerous ways to navigate the BHL web site to see issues of our journal, but the most efficient method that I've found is as follows.

Go to www.biodiversitylibrary.org and click on "Browse by: Contributor" in the light blue bar

near the top of the page. After scrolling past the BHL Participating Contributors list, you'll arrive at a list of Other Contributors. In this alphabetical list, you'll find "Indiana Native Plant Society (INPS)". Clicking on this link will take you to a page with links to "Inpaws journal" and "News" (*INPS Journal* should also appear here in the near future). Click on one of these links ("News" for issues from 1994-2004, or "Inpaws journal" for issues from 2005-2018, and presumably "INPS journal" for issues beginning in 2019). Then, near the middle (left to right) of the top of the page, you can use the drop-down box to choose the volume/year of the *News* or *Journal* that you'd like to view. Once you do that, you can view the issue of your choosing by scrolling through the "Pages" box on the left side of the screen; "Page [1]" begins each issue.

You'll notice that some volumes/years are still missing; check back often; we're working on getting all past (and current) issues added.

INPS is very proud to have our journal included in this highly respected online library. Take some time to peruse some of the other resources after you've looked up your favorite back issue of *INP(AW)S Journal*.

Scott Namestnik is the INPS Journal team leader, treasurer of INPS North Chapter and a botanist at Orbis Environmental Consulting.



Biodiversity
Heritage
Library

Let's go hiking!

The DNR Division of Nature Preserves has announced its schedule of 2019 guided field day hikes. Numbers of participants are limited, so registration is required at www.in.gov/dnr/naturepreserve/8661.htm.

Date	Nature Preserve	County	Partner	Leaders
April 17	Bluffs of Beaver Bend	Martin	INPS	Tom Swinford
May 4	Green's Bluff	Owen	INPS /TNC	Roger Hedge
May 11	Brock-Sampson	Floyd	INPS	Jason Larson
May 11	Sweedy Hollow	Monroe	INPS	Andrew Reuter
May 11	Olin Lake	LaGrange	INPS	Tina Flanigan
June 8	Lowe's Prairie	White	INPS	John Bacone
June 8	Wintergreen Woods	LaPorte	INPS /LPCCT	Derek Nimetz & Liz McCloskey
June 26	Pine Hills 50 th anniv.	Montgomery	INPS	Mike Homoya
Sept. 14	Pine Station	Lake	INPS /TNC	Emily Stork
Sept. 21	Bluffs of Beaver Bend	Martin	INPS	Ryan Keller

@indiananativeplants.org



Mission

To promote the appreciation, preservation, scientific study, and use of plants native to Indiana.

To teach people about their beauty, diversity, and importance to our environment.

Board of Directors

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Vice President	Roger Hedge	vicepres@indiananativeplants.org	317-473-3222
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Supporting Roles

Donor Relations	Open		
Historian	Ruth Ann Ingraham	historian@indiananativeplants.org	317-517-9022
Membership	Cynthia Monnier	membership@indiananativeplants.org	317-460-7751
Web Site/Communications	Wendy Ford	webmaster@indiananativeplants.org	317-413-5918

State Program Leaders

Annual Conference	Nancy Hill	conference@indiananativeplants.org	317-514-4419
	Ronnie Greenberg	rkg128@gmail.com	260-483-6327
Book Sale	Suzanne Stevens	booksale@indiananativeplants.org	317-627-4082
Conservation Advocacy	Doug Rohde	conservation@indiananativeplants.org	317-842-2423
Grants & Awards	Alicia Douglass	smallgrants@indiananativeplants.org	765-623-4652
Grow Indiana Natives	Ellen Jacquart	grow@indiananativeplants.org	812-876-9645
Invasive Plant Education	Dawn Slack	invasives@indiananativeplants.org	931-216-8373
Letha's Youth Fund	Angela Sturdevant	lethasfund@indiananativeplants.org	317-951-8818
INPS Journal	Scott Namestnik	journal@indiananativeplants.org	574-656-3511
Journal Editor	Patricia H. Cornwell	journal@indiananativeplants.org	812-732-4890
Journal Layout	Kit Newkirk	journal@indiananativeplants.org	765-719-0414
Plant Sale & Auction	Kelly Spiegel	plantsale@indiananativeplants.org	317-418-5489
	Tammy Stevens	plantsale@indiananativeplants.org	317-286-8198
Youth Education	Open	youth@indiananativeplants.org	

Chapter Leaders

Central	Brooke Alford	central@indiananativeplants.org	206-380-1267
East Central	Jon Creek	eastcentral@indiananativeplants.org	765-499-3670
North	Jan Hunter	north@indiananativeplants.org	419-833-2020
Northeast	Laura Stine	northeast@indiananativeplants.org	260-414-7758
South Central	Steve Dunbar	southcentral@indiananativeplants.org	812-325-0968
Southwest	Anne Butsch	southwest@indiananativeplants.org	812-453-0470
West Central	Mickey Penrod	westcentral@indiananativeplants.org	765-523-3538

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Submissions: Anyone may submit articles, photos and news items. Acceptance is at the discretion of the editors. Submit text and photos (300 ppi) via email to journal@indiananativeplants.org. Query for writer's guidelines. Deadlines: Jan. 1 issue – Oct 22; April 1 issue – Jan. 22; July 1 issue – April 22; Oct. 1 issue – July 22.

Membership: INPS is a not-for-profit 501(c)(3) organization open to the public. Join at www.indiananativeplants.org.

Share online: Send information for posting to webmaster@indiananativeplants.org.


Plant sale May 11

This year's INPS plant sale and auction will be Saturday, May 11, at Park Tudor High School, Indianapolis.

The pre-sale speaker will be INPS president Ellen Jacquart. Her topic will be "Invasives in Indiana." Jacquart spent a career managing natural areas in Indiana for DNR, the US Forest Service and the Indiana Chapter of The Nature Conservancy. A major focus of her work has been the threat of invasive plants. She chaired the Invasive Plant Advisory Committee from its inception in 2010 until she retired in 2016. She now chairs Monroe County – Identify and Reduce Invasive Species (MC-IRIS), which works to reduce the impact of invasive plants in Monroe County.

Jacquart's presentation will begin at 9:30 a.m. A \$10 fee entitles ticket holders to hear her talk, begin shopping 15 minutes before the general public and receive a \$10 discount on any auction purchase. Plant sale and book sale will be open to the public from 10:15 a.m. to 12:30 p.m. The auction will begin at 11:15 and continue until every general sale plant is sold.

Tammy Stevens and Kelly Spiegel are again serving as co-chairs of the event. Suzanne Stevens is in charge of the book sale.

To volunteer to help with the sale, go to <http://signup.com/go/qUmxCSL>. 

FB Native Plant of the Week

By Ellen Jacquart

Monday afternoons I typically have Facebook open on my computer, waiting for that familiar "ding" signaling that one of my favorite things has arrived. It's the INPS Facebook Native Plant of the Week post!

Thanks to the 2018 team – Martha Ferguson, Will Drews, Chris Neggers, Michael Huft, and Keith Board (a wonderful botanist from Bremen who, sadly, passed away in January) – for contributing weekly native plant posts that both educated and entertained members of the INPS Facebook Page. Each post contained pictures of the featured native plant and information about the plant.

The main goal of this effort was, first, to have great native plant information on the INPS Facebook Page throughout the year and, second, to spread that message to a broader audience than just our paid INPS members. By the metrics used by Facebook Pages ("likes" and "reach") it worked – we went from 1,800 "likes" in December 2017, to 2,850 "likes" in December 2018. In terms of "reach" (the number of people who had any content from or about the INPS Page enter their screen) – well, compare the "reach" statistics in 2017 (23,700) with 2018 (338,100).

Most of the thousands of people reached were attracted to the Native Plant of the Week posts – and all were "organic," meaning we didn't pay for this exposure. People just viewed and shared the posts because they really liked them!

We also shared these popular Facebook Page posts with the INPS Facebook Group. The Group, which has about 11,800 members, allows members to post questions and pictures, unlike the Page, where only INPS administrators can post content. This allowed thousands more people to see and learn from these posts.

Happily, the team is continuing the Native Plant of the Week posts through 2019, and we have added Nathanael Pilla and Vern Wilkins to the team to add new perspectives. Join me in listening for that "ding" every Monday! 



The Nature Conservancy

Ellen Jacquart, president of INPS, will be the featured speaker at the organization's annual sale and auction of native plants on May 11.

Gardening for All Ages Hendricks County – April 13

Hendricks County Master Gardeners will offer a free educational event, "Gardening for All Ages," on Sat., April 13, from 9:30 a.m. to 1:30 p.m. at the 4-H fairgrounds, 1900 E. Main St., Danville. Six presentations will cover hydroponics, composting, garden tools, drip irrigation, GMOs and growing tomatoes. There will be a children's booth and a food truck. For information: www.hendricksgardeners.com.

Chapters warm up in first

INPS at work



Central

Central Chapter members braved below freezing temperatures to attend the annual ice breaker on a sunny Sunday afternoon in January. The social gathering, which included our election, was held in Avon, Hendricks County, at the home of treasurer Sonok Deutscher.

A new president and vice-president were elected; secretary and treasurer were re-elected. Officers for 2019-2020 are president Brooke Alford, vice-president Nancy Tatum, secretary Gail Wiseman and treasurer Sonok Deutscher.

At the Nora Library, Indianapolis, on Feb. 10, Central Chapter vice-president Nancy Tatum spoke to members and the public about how to establish and maintain a wildlife garden with native plants. She is a self-taught gardener who has transformed her yard into a sanctuary for wildlife, including pollinators.

Members learned how to identify native Indiana wetland plants at their Feb. 24 meeting at the Nora Library. Chapter member Landon Vine spoke about these often overlooked plants. He works in ecological consulting as a wetland ecologist.

The chapter's plant rescue committee has been working year-round to locate properties that are going to be developed and that contain significant native plants that need saving. The Invasive SWAT Team has been gearing up for spring activities. Members staffed an INPS booth at the Central Indiana Seed Swap in Hamilton County and will staff one at the Earth Day Indiana Festival in Marion County. New media ventures were planned in hopes of reaching more people as we advocate for our native plant populations and their habitats.

Amber Slaughterbeck, a member of our chapter's new media team, was featured in the *Indiana Economic Digest* which ran the article "Stopping the invasion of 'bullying' plants" by Steve Kash of the *Star-Tribune*. Amber works for Southern Indiana Cooperative Invasives Management. The article can be found at <https://indianaeconomicdigest.com/Main.asp?SectionID=31&ArticleID=94408>.

North

The new year started with the North Chapter participating in a new event, the Michiana Regional Seed Swap. Members Jan Hunter, Sue Stuckman and Carole Mitchell bravely ventured out during a snow storm Jan. 19 to staff the INPS table. While the weather kept many people home, an estimated 40 people attended. The chapter members gave out many native plant seed packets and now have a good base of knowledge for our next seed swap.

Sunny skies greeted us the next day, but with it came bitterly cold temperatures. The high was only 12°! About 30 members attended our first scheduled program of the year at the University of Notre Dame Herbarium. Barbara Hellenthal, UND Biodiversity Museum and Herbarium curator, gave us a tour and history of the herbarium. The collection includes some of John Muir's plant specimens. Barb's husband Ronald Hellenthal, entomology professor, opened up the insect collection for us to view. The group also learned the process of collecting and preparing plants as herbarium specimens. North Chapter board members Scott Namestnik, Nathanael Pilla and Adam Balzer shared their expertise for this part of the program.

The Feb. 17 program at Bendix Woods County Park featured Evie Kirkwood, director of St. Joseph County Parks, who spoke on "The Art and Science of Maple Syrup." Each winter the park taps sugar and black maple trees and produces maple syrup. Members learned the methods used to tap trees and collect and cook sap and discussed ongoing threats to native maple trees.

On March 17 Jane Sablich, environmental education coordinator for the St. Joseph County Soil and Water Conservation District, gave an inspiring program entitled "Rain gardens: Putting your Native Plants to Work." As many of us are planning new gardens or adding more native plants to ones we have, this program gave us great ideas for areas that receive excess water.

quarter

Florathon 2019 starts this month!

Northeast

Under new president Laura Stine, Northeast Chapter is planning events to showcase Fort Wayne and its native wonders when it hosts November's INPS conference. Guests will see the city's riverfront development and revitalized downtown.

The chapter is working with the Allen County Master Gardeners program to promote the incorporation of native plants into Master Gardener display gardens.

Our chapter partnered with Little River Wetlands Project for a wetland seed propagation class Feb. 2, which was World Wetlands Day. The chapter provided brochures at the Master Gardener booth at the Feb. 28-March 3 Home & Garden show in Fort Wayne, gave a presentation about the chapter March 27 at the Master Gardener class on perennials/natives, will present volunteer opportunities at the April 18 final Master Gardener class and will assist at the May 18 Master Gardener plant sale for the public.

The chapter will have a spring wild-flower hike for the public May 5 at 2 p.m. at Douglas Woods in Hamilton. 🍂

South Central Upcoming hikes

South Central Chapter is co-sponsoring "Wildflower Forays" April 12-14 in and around McCormick's Creek State Park and April 26-28 at Brown County State Park. Details are at www.calendar.dnr.in.gov.

David Mow will lead hikes at Burkhart Creek Park in Morgan County on April 20 and May 11 at noon. Dan Shaver will lead a plant inventory at the Ryan property in Daviess County, starting at 12 noon on June 15. Cathy Meyer will lead a hike at Flatwoods Park in Monroe County from 1 to 3 p.m. July 21.

Earlier, SCINPS members enjoyed a Jan. 19 tour of the IU Herbarium and a March 20 hike led by David Mow at Burkhart Creek Park.

For more information on upcoming events, contact David at davidmow@att.net. 🍂

The 2019 INPS Florathon is scheduled for April 13 – May 12. Proceeds will again benefit the Letha's Youth Outdoors Fund.

If you didn't have a team last year, consider finding one to five other plant enthusiasts to join you in forming one. Next, get your creative juices flowing and choose a team name. Then think who you can approach for donations, when you will do your Florathon outing, and where you will go to search for blooming wild-flowers! Additional information for this year's event can be found on the INPS web page: indiananativeplants.org/gatherings/florathon.

Teams recruit donors and choose a single day within the program period to go on their plant quests. Last year, 13 teams involving 50 participants surveyed 24 Indiana counties and identified 372 unique blooming species. Their efforts and the generosity of 100 donors raised \$4,259.25.

We hope to have more teams and more money raised for Letha's Fund this year. Plan now to join the fun and top last year's numbers! 🍂

2019 Conference: Nov. 11 in Fort Wayne

The annual conference moves north this year, scheduled for Saturday, Nov. 11, at Grand Wayne Convention Center in Fort Wayne. Co-chairs for the event are Nancy Hill and Ronnie Greenberg. Watch for details in the summer issue of *INPS Journal*.

Correction: Due to erroneous information we were provided, the winter 2018-19 issue of *INPS Journal* mistakenly reported that West Central Chapter's RIP (Remove Invasive Species) squad was newly formed, when in fact it has been ridding the region of invasive plants since 2005. 🍂

Hand in hand INPS and Soil and Water Conservation Districts

By Claire Lane

Soil and Water Conservation Districts (SWCD) offer landowners free technical assistance and education on urban and backyard conservation practices with a focus on native species.

In the early 1930s, the Great Depression gripped America, leaving over 15 million Americans unemployed. A severe drought compounded issues as “black blizzards” of dust blew across the plains. This Dust Bowl made agriculture difficult to impossible and brought soil erosion to the forefront of environmental, political and economic considerations. In 1932, Franklin Delano Roosevelt highlighted soil conservation as a priority in the New Deal. Hugh Hammond Bennet, the father of soil conservation, pushed Congress to address this “national menace” with a keen awareness of the need for locally led conservation.

By 1940, the Indiana legislature followed national trends and created a law authorizing the creation of Soil and Water Conservation Districts by a petition process. Later that year, Vanderburgh County became home to the first SWCD in Indiana.

A lot has changed in almost 80 years, but the focus on locally led natural resources conservation has not. Now, each of Indiana's 92 counties is home to an SWCD. Technology, cultural shifts, urbanization and the complexities of natural resources issues have led us to new conservation and management techniques. SWCDs maintain their mission of locally led conservation by providing quality education and outreach, prioritizing local resource concerns, providing technical assistance, and connecting land users to the knowledge, tools, and technical and financial resources they need to implement conservation. A SWCD's day-to-day operations are managed by staff, but their work is directed by a board of five supervisors plus affiliate supervisors, all county landowners and residents. While rural landowners and communities may be well-versed in their SWCD's services, many urban dwellers may not realize the opportunities that lie within their SWCDs.

As SWCDs identify and prioritize local natural resource issues, they are great partners for INPS members and regional chapters. District priorities and staffing levels vary but districts are

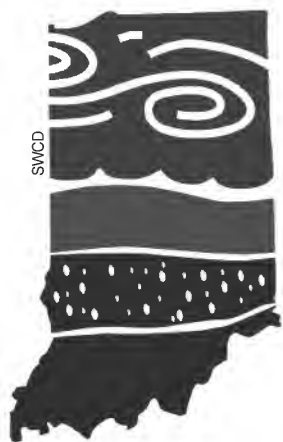
skilled in connecting land managers with relevant resources and tools. While some districts are vital resources for agricultural producers in practices such as soil health and cover crops, many are increasingly offering urban or backyard conservation resources, programs, and events that focus on rain gardens, native plants, invasive removal and pollinator habitat. Many districts offer seasonal tree and plant sales. Financial assistance in the form of small grants or cost sharing for agricultural conservation is frequently being offered alongside smaller grants for backyard, square-foot-scale projects.

Many INPS chapters are already strong partners with their SWCDs. In Hamilton County, the SWCD collaborated with INPS to bring the Grow Indiana Natives program to central Indiana prior to its statewide launch. The district and Central Chapter also collaborate for events, resource and tool sharing, speaking engagements and technical assistance for hands-on projects.

Elsewhere in the state, organizations take advantage of SWCD technical assistance and INPS grant dollars to implement projects such as the educational rain garden at the Mulberry Community Public Library in Clinton County. Many districts are also involved with invasive species removal efforts and establishment of Cooperative Invasive Species Management Areas. In counties where staffing or native plant knowledge might be limited, INPS members can serve as community resources through their SWCD and INPS to broaden public access to native plant information.

INPS chapters are well-suited to partner with their local SWCDs. I encourage INPS members to visit www.wordpress.iaswcd.org/contact-your-local-swcd to find the contact information for your local district. Explore their web page or, better yet, stop by the office to meet your local staff and learn what resources are available in your area. You may be surprised by the wealth of resources and knowledge available for those interested in native plants, invasive removal and conservation in general.

Claire Lane is the urban conservationist for Hamilton County Soil and Water Conservation District and serves as INPS Central Chapter representative for the INPS Grow Indiana Natives program.



Logo of the Johnson
County Soil and Water
Conservation District

July 20, 1960 – Jan. 12, 2019

Keith Board

By Scott Namestnik

The Indiana and Chicago region botanical communities recently suffered a great loss with the passing of INPS member Keith Board on Jan. 12. A woodshop, drafting and architecture teacher at Bremen High School in Bremen, IN, Keith touched the lives of countless students during his 31-year teaching career. His interests were varied, including woodworking, carpentry, photography, fishing, writing poetry and jokes and, of course, botany and exploring natural areas.

As a self-taught field botanist, Keith's work was invaluable to our understanding of the flora of northern Indiana. He contributed immensely to *Plants of the Chicago Region* (Swink and Wilhelm, 1994), discovering numerous plant species not previously known from a given county or even the 22-county Chicago region. More recently he contributed to the monumental *Flora of the Chicago Region* (Wilhelm and Rericha, 2017), again finding new county and region records, and reviewing the nearly 1,400-page book during its writing at the request of the authors.

I first met Keith in 2005, though I'd seen his name peppered throughout *Plants of the Chicago Region* since moving to Indiana and beginning to study its flora in 1998. Passages such as "this western range weed was first discovered in the Chicago region by Keith Board...", "... our only record of this species is from a single, bushy-branched tree in the middle of an open boggy meadow east of Lydick, St. Joseph County, first noted in 1991 by Keith Board...", and "this species was unknown from the Chicago region until its discovery by Keith Board in 1990..." are familiar to anyone who has used this book.

I was eager to meet this legend and thrilled to find out he was as humble as anyone I've ever met. We botanized together regularly from that point on, including last May during the first INPS Florathon. I learned a tremendous amount about our flora from Keith, including where to find some of our rarest and most interesting plants. Over the years, Keith often told me how rusty he was with plant ID, and my response was always that I would take a rusty Keith Board over pretty

much anyone else in northern Indiana. He was just that good.

Although Keith loved visiting pristine natural areas, he was just as content finding "rare weeds," as he called them, in campgrounds, along railroad tracks or in fairgrounds. Anyone can identify the showy and charismatic species; I measure the capability of a field botanist by how well they know the weeds and other commonly ignored plants. Keith was one of the best.

Many of you probably got to "know" Keith more recently on Facebook, as he was a regular contributor to the INPS Facebook page. He was continually willing to share information

and help someone identify a plant, and his own beautiful photographs were always a welcome sight. Several of his photos appear in Mike Homoya's *Wildflowers and Ferns of Indiana Forests* (IU Press, 2011). Many of his plant photos and discussions about those plants can still be

found at *Get Your Botany On!* (<http://getyourbotanyon.blogspot.com>), a blog to which he regularly contributed for several years. These photos will continue to provide solace as we try to fill the huge void that has been left with his passing.

Scott Namestnik has created a slide show in Keith Board's honor. It can be found on YouTube and at <http://getyourbotanyon.blogspot.com/2019/01/remembering-keith-board.html>.



Scott Namestnik

Projects get biodiversity grants

Four of nine grant applications received for the INPS 2018 grant cycle have been awarded funding, totaling \$5,500.

the entrance to the parks department headquarters. Mowed paths will be maintained through the planting area. After it matures, the project site will be part of their environmental education outreach to citizens and schools. Tippecanoe County Soil and Water Conservation District is a partner agency.

Bloomington High School North was awarded \$1,500 in the Land Management and Conservation category to remove bush honeysuckle, plant tree seedlings and propagate and plant native herbaceous seedlings in a 16-acre woodland behind the school. This project has not received prior INPS funding. Hoosier Hills Career Center adjacent to the high school is a project partner. Students from both schools will provide labor and use the project site for educational opportunities.



Indiana Medical History Museum

The Indiana Medical History Museum won a grant from INPS to help provide signage at its demonstration gardens in an under-served community in Indianapolis.

Indiana Medical History Museum was awarded \$1,500 in the category of Demonstration Gardens for signs for an Indiana Native Tree Arboretum and a Native Prairie Patch. Trees and prairie plants have already been planted. These projects have not received prior INPS funding. The project sites are on the west side of downtown Indianapolis in an under-served community. The neighborhood uses the project site as a park, and two schools are within walking distance, creating the opportunity for future educational programming as the plants grow. Project partners include Master Gardener volunteers.

Tippecanoe County Parks and Recreation Department was granted \$1,500 in the Demonstration Garden category for seed for a seven-acre pollinator demonstration project at

Friends of the Limberlost will receive \$1,000 in the Land Management and Conservation category for seed and plants at Loblolly Marsh. Plantings will be along Veronica's Trail and the Wetland Overlook where school groups are frequently brought for outdoor education. The project will improve diversity and establish better habitat. Project partners include Friends of the Limberlost volunteers, Limberlost State Historic Site staff and DNR staff at Limberlost.

Grant awards will be distributed for each project after INPS has received a report of project completion, including a project description and photographs. All projects are to be completed by November 1, 2019.

The committee, chaired by Alicia Douglass, will begin accepting applications for the 2019 grant cycle July 1. 🌿

2018 INPS revenue & expenses

By Don Gorney

The 2018 financial statements reflect only state-level operations and do not include any chapter financial information.

The financial position of Indiana Native Plant Society remains strong. During 2018, revenue exceeded expense by \$14,775. At year-end 2018, the organization had liquid cash assets of \$99,361 and no liabilities.

Because the organization operates on a cash basis, versus accrual, certain earmarked expenses committed to in 2018, which will not be paid until 2019, are not reflected in 2018 results. These expenses amount to \$35,391 and include external grants of \$5,000 and \$4,000 for *Wake Up, Woods*, a children's book the organization will publish in 2019, and commitments to Letha's Fund. Had these expenses been paid out in 2018, the surplus for the year would have been \$63,970.

Don Gorney is treasurer of INPS.

INPS Balance Sheet - State Only

December 31, 2018	
ASSETS	
Checking	19,579
Money Market	79,782
TOTAL ASSETS	99,361

Expenses

Bank Fees	254
Network For Good Proc. Fees	795
Network for Good - Monthly Fee	1,101
Publications	3,464
Outreach	1,579
Insurance - General Liability	3024
Membership Expense	
Printing and Mailing	54
Annual Directory	614
Membership Expense	668

Statement of Financial Activities Fiscal Year 2018

Income

Membership	
Gross Membership Dues	32,441
Dues Transfer to Chapters	(5,180)
Membership income	27,261
Donations	
Plant Sale	
Sale of Plants	6,243
Plant Sale Auction	2,772
Plant Sale - Other Income	748
Plant Sale Bookstore	376
Plant Sale income	10,139
Annual Conference	
Registrations	20,385
Sponsors/Exhibitors	9,600
Conference - Other Income	1,963
Conference Bookstore	3,911
Annual Conference Income	35,859
Interest Income	
Grow Indiana Natives	
Children's Book	
Letha's Fund Donations	
Florathon	4,119
Letha's Fund Donations - Other	2,469
Letha's Fund Donations	6,588

Journal Expense	
Printing	5,409
Mailing	195
Prep and Editing	4,000
Journal Expense	9,603
Other Postage	
Website Expense	
Technology Expense	
External Grants	
Plant Sale Expense	
Plants	707
Credit Card Processing	190
Plant Sale - Other	606
Plant Sale Expense	1,502
Annual Conference Expense	
Venue and Food	20,004
Conf. Credit Card Processing	143
Conference - Other Expenses	13,954
Conference Bookstore	3,591
Annual Conference Expense	37,692
Children's Book Project	
Grow IN Natives	
Letha's Fund Distributions	
Donations to Others	
Misc. Expenses	
	94

Total Income **95,226**

Total Expenses **80,450**
Revenue Minus Expenses **14,776**



River World

River World: Wildlife of the Mississippi River, by Virginia Eifert, Dodd, Mead & Company, New York, 1959

Reviewed by Nick Harby

In today's world, one can estimate the interest in any book published by checking how many reviews it has on *Amazon.com*. I'd like to suggest to you a book you've probably never heard of: *River World*. It was written in 1959 by Virginia Eifert. You've probably never heard of her either. Yet I firmly believe *River World* and its author belong in that rarified air where the great nature writings of America are placed. On Amazon's page for *River World*, not a single review has been posted. Rachel Carson's *Silent Spring* has 643 reviews. Aldo Leopold's *A Sand County Almanac* has 557 reviews.

I hadn't read *River World* until a few months ago. I was about ready to give it away while cleaning off my bookshelves, but I started reading it. It struck me how similar the writing was to that of Rachel Carson, author of such great books as *Silent Spring*, *Under the Sea-Wind* and *The Sea Around Us*.

In a chapter on a cattail marsh, Eifert's keen powers of observation are evident: "The cattail moth is so small that one might think it was only a bit of fluff making off from the growing seed head. ... As an insect, it might be uninteresting if it were not so astonishingly set in its ways. For, to the moth, life evidently depends upon cattails, with no substitutes or changes."

Particularly striking is Eifert's description of the American eel's fantastic migration from the Mississippi River (there are eels in Indiana, too!) to the middle of the Atlantic Ocean. In *Under the Sea-Wind*, Rachel Carson tells a similar story of eels from ponds in New England traveling to the Sargasso Sea. Both authors personalize the eel by naming it *Anguilla*, after its scientific genus.

Along with the journey of *Anguilla*, Eifert includes an interesting observation about another fantastic migration, that of butterflies southward along the Mississippi. It would not be until the 1970s that it was discovered that the monarchs were heading for central Mexico.

"One day, on an autumn trip by towboat up the river," Eifert wrote, "my companion and I counted monarchs going past, only those directly above the river itself, and reached a total of 238 within two hours' time. Since the river is a comparatively narrow highway, and since monarchs were scattered for miles on both sides of it, the final total must have been a tremendous one."

Virginia Eifert spent most of her life in Springfield, IL. She wrote for the Illinois State Museum's publications, some of which can be seen on the web at virginiaeifert.com. Also at this web site we find that Virginia Eifert and Rachel Carson corresponded, which may explain the similarity in their writing styles.

River World is the story of wildlife on the Mississippi River. From Minnesota to Louisiana, it is the key part of several ecosystems described in this book. The north woods near the river's source at Lake Itasca is described as originally being stands of great white pines, red pines and hemlocks. Also told is the story of Eifert's visit to the earthquake-created Reelfoot Lake in Tennessee, with a huge bird colony she calls Cranetown.

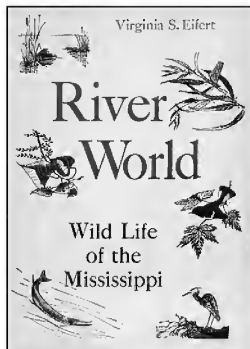
River World devotes an entire chapter to the willows that are so dominant along the river. "The willow smell is the river's own distinctive odor," she wrote. A later chapter concerns more of the Mississippi's trees: sycamore, river birch, persimmon, pecan, live oak. Another chapter is devoted to giant grasses, the crops of maize, sugar cane, and rice, and the wild grasses *Zizania*, *Arundinaria*, *Phragmites*, *Leersia* and *Andropogon*.

In Indiana we see ecosystems similar to those described in *River World*. Along the Ohio and Wabash Rivers, in our forests and wetlands, we see much of the same wildlife described by Eifert along the Mississippi. There are many books that every Hoosier naturalist needs to have read, and *River World* is one of them.

While the book has not been reprinted, it is available as a Kindle edition at www.amazon.com/kindle and Amazon has used hardcover copies from \$2.28.

Nick Harby is a member of INPS West Central Chapter.

Book reviews



Sedges and Rushes of Minnesota

Sedges and Rushes of Minnesota: The Complete Guide to Species Identification, by Welby R. Smith, photography by Richard Haug, University of Minnesota Press, Minneapolis, 2018

Reviewed by Paul Rothrock

Sedges and Rushes of Minnesota is a field guide for learning to identify species from these two technical families (sedges or Cyperaceae; rushes or Juncaceae). It is not intended for the novice, but for those with intermediate to advanced botanical knowledge, and I highly recommend it for the latter.

The book is a richly illustrated, authoritative guide to species identification. It includes well-crafted dichotomous keys, a two-page spread of text and pictures for each species and an eight-page glossary of terms.

Welby R. Smith is the Mike Homoya of Minnesota. Not only is he employed by that state's DNR as a botanist, but he has penned several outstanding guides about their flora. In addition to the volume on sedges and rushes, he has authored one on Minnesota orchids and another on their trees and shrubs (a valued item in my reference library).

The descriptions of sedges and rushes are carefully crafted, the habitat notes crackle with precision, and the notes comparing similar species beautifully capture the essence of each. Even if you are not ready to dig into these two challenging plant families, I recommend purchase of the book for the simple pleasure of relishing the beauty of these organisms. Most images are of carefully prepared fresh material or habit shots in the field. Photographer Richard Haug is an artist/naturalist.

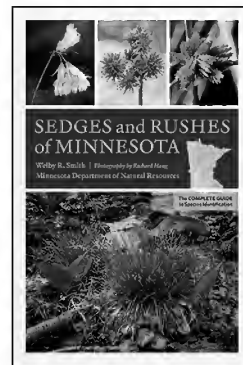
Since the focus is on use in the field and on identification, the book is spare in some ways. The volume would have benefited by having an introductory chapter that illustrates the morphological traits unique to these families. I also would quibble with the total avoidance of common names. Not even familiar common names for genera are hinted at, such as leafy bulrush,

cotton grass, nut sedge, three-way sedge, spikerush and the like.

The Introduction includes maps showing Minnesota counties, substrate or soil types, and vegetation regions. Based upon 25,000 herbarium records, it presents each species with a colored distribution map that allows one to quickly see the relative abundance of individual species in Minnesota and its relationship to bioregions.

For those beyond the beginner stage of botany, this guide successfully fulfills its mission of being a "Complete Guide to Species Identification."

Paul Rothrock is a research scientist, associate curator of the IU Herbarium and a member of INPS South Central Chapter.



Cedar Creek – from back page

The 13.7-mile recreational reach of Cedar Creek exhibits a great botanical variety within this small reach. The birding is pretty good, too. Several folks have surveyed these here hills and dales over the years and turned up rarities such as Indian paintbrush (*Castilleja coccinea*), yellow lady's slippers (*Cypripedium parviflorum*), northern gooseberry (*Ribes hirtellum*), rush aster (*Symphyotrichum boreale*) and yellow-crowned night herons (*Nyctanassa violacea*). Other notable species include prairie dock (*Silphium terebinthinaceum*), bluestems (*Schizachyrium scoparium* and *Andropogon gerardii*), rough blazing star (*Liatris aspera*) and American columbo (*Frasera carolinensis*) in old fields and persistent openings. Red turtlehead (*Chelone obliqua*), lizard's tail (*Saururus cernuus*) and carpets of beak grass (*Diarrhena* spp.) are found throughout the floodplain.

The exceptional little gravel-hill prairies, sedge fens and seasonally inundated floodplains are just small pieces of the whole and will undoubtedly change. How lucky we are to study and delight in these remarkable cogs and wheels. How lucky our successors will be to find it better than we did.

Casey Jones is director of land management for ACRES Land Trust.



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Natural area profile

A birder's-eye view of Cedar Creek Corridor



By Casey Jones

Fair warning: I'm a birder first, botanizer second. When I think of natural areas, I think of large uninterrupted undeveloped areas where natural communities and processes have the space and time to be. A wood thrush (*Hylocichla mustelina*) will sing where that minimum acreage criterion is met.

Through my work with ACRES Land Trust, I've come to know areas near and within several larger natural corridors in northeast Indiana, many being along reputable rivers: Pigeon, Tippecanoe, Elkhart and others near areas managed by the state, such as are found at Wabash-area reservoirs.

Smaller than many of these places, though no less noteworthy, is the Cedar Creek Corridor in Allen and Dekalb counties. Here, 13.7 river miles (about nine miles by the crow) of Cedar Creek have been designated as a recreational river, one of only three streams in the state to be afforded this status. This simple and somewhat misleading "recreational" designation has had a positive effect on the stream's natural communities, since its relatively recent adoption in the 1970s, by restricting so-called improvement of and around the stream's channel.

The subsequent perpetual protection of more than 1,000 acres in this corridor is owed to several private landowners and organizations including ACRES Land Trust, Izaak Walton League

of America, The Nature Conservancy, Friends of Cedar Creek and the Girl Scouts. Allen County Parks and Recreation accounts for a few sizeable chunks of green space, too. The state's involvement is its effecting and defense of the "Natural, Scenic, and Recreational River System" status as well as protection of conservation easements and dedicated nature preserves. Many of these places are open to the public or accessible to each sponsoring organization's membership.

Plants? I'm getting there. But first it is important to realize that these places are only as ecologically valuable and significant as their degree of protection from development. While streams tend to be logical and appropriate corridors for natural communities, they are all too often regarded as drains and ditches. For this reason, we can only imagine the "would-be" of the great Black Swamp and the Kankakee.

Cedar Creek – continued on page 19